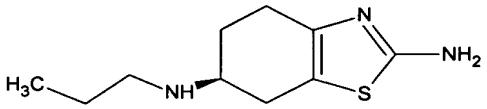
ABSTRACT

Improved process for the preparation of the intermediate compound of formula II for formation of biological active tetrahydrobenzothiazole compound of formula (I) as well as the biological active tetrahydrobenzothiazole compound of formula (I) and/or its pharmaceutically acceptable salts or solvates.



(I)

The process comprises reacting 4-amino cyclohexanol of formula (III) or its acid addition salts with phthalic anhydride in presence of acid catalyst and their salts, in polar aprotic solvent or its mixture with organic solvent, capable of removing water azeotropically to give 4-(phthalimido)-cyclohexanol of formula (IV); oxidizing 4-(phthalimido)-cyclohexanol of formula (IV) to give 4-(phthalimido)-cyclohexanone of formula (V); brominating 4-(phthalimido)-cyclohexanone of formula (V) with brominating agent in organic solvent in presence of Lewis acid catalyst to prepare 2-bromo-4-(phthalimido)-cyclohexanone of formula (VI); treating 2-bromo-4-(phthalimido)-cyclohexanone of formula (VI) with thiourea in organic solvent in presence of base to give 2-amino-6-phthalimido-4,5,6,7-tetrahydro benzothiazol of formula (VII); reacting compound of formula (VII) with hydrazine hydrate and base in polar solvent to give racemic 2,6-diamino-4,5,6,7-tetrahydro-1,3-benzothiazole of formula (VIII); resolving racemic 2,6-diamino-4,5,6,7-tetrahydro-1,3-benzothiazole of formula (VIII) to prepare (6S)-2,6-diamino-4,5,6,7-tetrahydro-1,3-benzothiazole of formula (II). To form the compound of Formula I and if desired its salts/ solvates the above process is carried out with further steps of coupling (6S)-2,6-dimino-4,5,6,7-tetrahydro-1,3-benzothiazole of formula (II) with propionaldehyde in presence of mineral acid in polar organic solvent and reducing agent to prepare (S)-(-)-2-Amino-6-(n-propylamino)-4,5,6,7-tetrahydrobenzothiazole of formula (I);and if desired converting (S)-(-)-2-Amino-6-(propylamino)-4,5,6,7-tetrahydrobenzothiazole to its pharmaceutically acceptable salts or solvates.